

## DOE Recommendations with BNL Responses

A Department of Energy Annual Progress Review of the Electron Beam Ion Source (EBIS) Project was held at BNL on May 14-15, 2006. The following are the recommendations from the review, followed by specific comments by the EBIS Project Team addressing these recommendations.

- **Prior to Critical Decision-2 (CD-2), revise the Startup Plan to incorporate comments made at the review, as well as task duration and integration.** Comments were incorporated into the EBIS Startup Plan. The plan was then sent to DOE-NP, and their final additional comments were incorporated in the present version. **This action is complete.**
- **Prior to CD-2, re-evaluate the Systems Requirement document for consistency in parameter definition.** The document was corrected, the new version was sent to DOE-NP and accepted without any further changes. **This action is complete.**
- **End-to-end beam dynamics simulations of the LEBT-RFQ-MEBT-Linac systems, including all known types of errors, should be completed prior to completion of final design.** At the May review, complete end to end simulations were presented. Error studies had been done and were also presented at the May review. We are confident that normal errors arising from the fabrication process for the RFQ and linac are acceptable, based on previously fabricated very similar RFQ and IH structures, where the as-built devices performed as calculated. *(Update: following the completion of the final physics design for the RFQ and Linac, full end-to-end simulations with errors were completed).* **This action is complete.**
- **Develop a detailed Quality Assurance (QA) Plan for the fabrication and testing of the Radio Frequency Quadrupole (RFQ) and include it in the final vendor contract.** The specification for the RFQ already had a detailed QA plan at the time of the review, but was not seen by the committee. However, some additions were made to the RFQ Specification based on suggestions from committee members during the review. **This action is complete.**
- **Prior to CD-2, integrate low level RF design efforts supported outside the project scope and design reviews into the project schedule.** Deadline schedule dates for the low level RF design efforts were added to the EBIS Project schedule. **This action is complete.**

- **Perform a critical path analysis, based on a first Quarter Fiscal Year 2010 (1QFY10) project completion, prior to CD-2 and incorporate results into project planning and documentation.** A critical path analysis was performed and incorporated into Project planning and documentation. The analysis accommodates the NASA preferred 1QFY10 completion with its Early Finish dates, but leaves the CD-4 date as 2QFY10. **This action is complete.**
- **Compare the obligations profile to the funding profile. Re-assess the contingency analysis upon completion of the critical path analysis and refinement of risk assessment. Optimize the contingency profile with respect to the planned obligation profile.** Risk and Contingency were reassessed before performing a review of funding vs. planned obligations by fiscal year. The results have been discussed with Federal Project Director Mike Butler as manager of the EBIS contingency funds. **This action is complete.**
- **Review and adjust, as necessary, the Level 2 and 3 milestones to ensure that progress can be adequately evaluated.** Additional milestones and deadline dates were added to the schedule. **This action is complete.**
- **Appoint an Integration Manager to the project team.** An Integration manager was appointed to the team and added to the organization chart. **This action is complete.**
- **The risk assessment should be re-evaluated upon the completion of a critical path analysis and to incorporate feedback from this review. This should occur prior to CD-2 and the results incorporated into project planning and documentation.** Risks have been reassessed and results incorporated into the Project schedule and documentation. Reassessment of risks, tracking closely high risk items, and continuous development of mitigation plans, will be ongoing throughout the project. **This action is complete.**